

In the Claims:

Claim 1. (currently amended) A reinforcement for resisting flexure of a cementitious board having opposed faces, comprising: reinforcing cementitious boards comprising:

an open mesh of high modulus of elasticity fiber strands; wherein the strands are covered by an alkali-resistant thermoplastic material adapting the open mesh for embedding in the cementitious board;

the strands extending across one another to define a mesh thickness;
wherein the open mesh is adapted with the mesh thickness for two embedded layers in the cementitious board; and

wherein the open mesh is adapted with the mesh thickness for positioning each embedded layer about 1/32 inch to about 1/16 inch from a corresponding one of the opposed faces to avoid spalling, while each embedded layer is spaced from a neutral axis of flexure of the cementitious board to resist flexure of the cementitious board;

wherein said alkali-resistant thermoplastic material is co-extruded with said strands to provide a substantially continuous coating of said alkali-resistant thermoplastic material about said strands; and

wherein said alkali-resistant thermoplastic material is selected from the group consisting of polyolefins and olefin copolymers.

Claim 2 (currently amended): The reinforcement of claim 1 wherein said mesh is heated after formation thereof to fuse said thermoplastic material to allow bonding is fused at areas where said strands intersect cross one another.

Claim 3 (previously presented): The reinforcement of claim 8 wherein said mesh is heated after formation thereof to fuse or sinter said portion of the fibrous thermoplastic material to form said substantially continuous mass.

Claim 4 (canceled).

Claim 5 (original): The reinforcement of claim 1 wherein said mesh has a strand count of about 2 to about 18 strands per inch in each direction.

Claim 6 (original): The reinforcement of claim 1 wherein said strands comprise bundled glass fibers having a linear density of about 33 to about 300 tex.

Claim 7 (currently amended): The reinforcement of claim 1 wherein said mesh is no greater than about 0.020 inch in mesh thickness.

Claim 8 (currently amended): [A reinforced cementitious board comprising:

a cementitious board; and]

The reinforcement of claim 1 wherein [a reinforcement embedded in said board,] said reinforcement [including] includes an open mesh of intersecting transverse and longitudinal high modulus of elasticity fiber strands covered by alkali-resistant thermoplastic material, wherein said thermoplastic material initially is fibrous, and wherein at least a portion of the fibrous thermoplastic material is fused or sintered such that the portion of the fibrous thermoplastic material is merged into a substantially continuous mass which substantially encapsulates a respective high modulus of elasticity fiber strand respective high modulus of elasticity strands and which bonds together the transverse and longitudinal strands at areas of intersection, and wherein at least a portion of said thermoplastic material comprises one or more of polypropylene, polyethylene, copolymers of polybutylene and propylene, ethylene-propylene copolymers or other olefins, nylon, polyester, ethylene propylene rubber, thermoplastic polyolefin rubber, and ethylene-propylene diene monomer.

Claim 9 (previously presented): The reinforcement of claim 8 wherein said fibrous thermoplastic material is friction spun as a fibrous sheath on a core comprised of said high modulus of elasticity strand.

Claims 10-35 (canceled).

Claim 36 (currently amended) The reinforcement of claim 8, wherein the high modulus of elasticity ~~fiber~~ strands comprise E-glass, and wherein the fibrous thermoplastic material comprises a core sliver of thermoplastic fibers commingled with the high modulus of elasticity ~~fiber~~ strands, and a plurality of sheath thermoplastic fibers which cover the core sliver thermoplastic fibers and the high modulus of elasticity ~~fiber~~ strands.

Claim 37 (currently amended) The reinforcement of claim 36, wherein the core sliver of thermoplastic fibers ~~comprise~~ comprises one or more of isotactic or syndiotactic polypropylene, ethylene-propylene copolymers or other olefinic fibers, nylon, polyvinyl chloride, or polyester, and wherein the sheath thermoplastic fibers comprise one or more of polypropylene, polyethylene, copolymers of polybutylene and propylene, ethylene propylene rubber, thermoplastic polyolefin rubber, and ethylene-propylene diene monomer.

Claim 38 (previously presented): The reinforcement of claim 1, wherein said alkali-resistant thermoplastic material is applied via cross head extrusion to said strands.

Claim 39 (previously presented): The reinforcement of claim 1 wherein said olefin copolymers include ethylene propylene rubber, thermoplastic polyolefin rubber, ethylene-propylene diene monomer or copolymers of polybutylene and propylene.

Claim 40 (withdrawn): A method of making a reinforcement for cementitious boards comprising:

(a) co-extruding high modulus of elasticity ~~fiber~~ strands with an alkali-resistant thermoplastic material to provide a substantially continuous coating of said alkali-resistant thermoplastic material about said strands, wherein said thermoplastic material is selected from the group consisting of polyolefins and olefin copolymers; and

(b) forming an open mesh of said coated high modulus of elasticity ~~fiber~~ strands.

Claim 41 (withdrawn): The method of claim 40, further including heating said mesh after formation thereof to fuse said thermoplastic material at areas where said strands cross.

Claim 42 (withdrawn): The method of claim 40, further including embedding said open mesh in a cementitious matrix to form a reinforced cementitious board.

Claim 43 (withdrawn): A method of making a reinforcement for cementitious boards comprising:

(a) providing strands of alkali-resistant thermoplastic material about high modulus of elasticity ~~fiber~~ strands;

(b) forming a mesh from said strands of thermoplastic material and high modulus of elasticity ~~fiber~~ strands; and

(c) fusing or sintering said stands of alkali-resistant thermoplastic material to merge said thermoplastic material strands into a substantially continuous mass which substantially encapsulates said high modulus of elasticity ~~fiber~~ strands.

Claim 44 (withdrawn): The method of claim 43, wherein said strands of thermoplastic material are friction spun as a fibrous sheath on a core comprised of said high modulus of elasticity strands.

Claim 45 (withdrawn): The method of claim 43, wherein said strands of thermoplastic material comprise a core sliver of thermoplastic fibers commingled with said high modulus of elasticity ~~fiber~~ strands, and a plurality of sheath thermoplastic fibers which cover the core sliver of thermoplastic fibers and high modulus of elasticity strands.

Claim 46 (withdrawn): The method of claim 43, wherein said core sliver of thermoplastic fibers comprises ~~comprise~~ one or more of isotactic or syndiotactic polypropylene, ethylene-propylene

copolymers or other olefinic fibers, nylon, polyvinyl chloride or polyester, and wherein said sheath fibers are comprised of one or more of polypropylene, polyethylene, copolymers of polybutylene and propylene, ethylene propylene rubber, thermoplastic polyolefin rubber and ethylene-propylene diene monomer.

Claim 47. (New) A reinforcement for resisting flexure of a cementitious board having opposed faces, comprising:

an open mesh of high modulus of elasticity strands;

respective coatings on the strands, wherein the respective coatings comprise an alkali-resistant material adapting the open mesh for embedding in the cementitious board; and

the strands extending across one another to define a mesh thickness;

wherein the open mesh having the mesh thickness is adapted for two embedded layers in the cementitious board; and

wherein the open mesh having the mesh thickness is adapted for positioning each embedded layer about 1/32 inch to about 1/16 inch from a corresponding one of the opposed faces to avoid spalling, while each embedded layer is spaced from a neutral axis of flexure of the cementitious board to resist flexure of the cementitious board.

Claim 48. (New) The reinforcement of Claim 47, wherein the respective coatings are fused together where the strands cross one another to stabilize the strands in the mesh.

Claim 49. (New) The reinforcement of Claim 47, wherein the respective coatings comprise fused or sintered fibrous alkali-resistant material, and wherein the respective coatings are fused together where the strands cross one another to stabilize the strands in the mesh.

Claim 50. (New) The reinforcement of Claim 47, wherein the respective coatings comprise a fused or sintered core sliver of thermoplastic fibers commingled with the high modulus of elasticity strands, and a fused or sintered plurality of sheath thermoplastic fibers which cover the core sliver thermoplastic fibers and the high modulus of elasticity strands.

Claim 51. (New) The reinforcement of claim 50, wherein the core sliver of thermoplastic fibers comprises one or more of isotactic or syndiotactic polypropylene, ethylene-propylene copolymers or other olefinic fibers, nylon, polyvinyl chloride, or polyester, and wherein the sheath thermoplastic fibers comprise one or more of polypropylene, polyethylene, copolymers of polybutylene and propylene, ethylene propylene rubber, thermoplastic polyolefin rubber, and ethylene-propylene diene monomer.

Claim 52. (New) The reinforcement of Claim 47, wherein the strands comprise bundled fibers with a Young's modulus of at least 1,000,000 psi.

Claim 53. (New) The reinforcement of Claim 47, wherein said alkali-resistant material is co-extruded with the strands.

Claim 54. (New) The reinforcement of claim 47, wherein said mesh has a strand count of about 2 to about 18 strands per inch in each direction.

Claim 55. (New) The reinforcement of claim 47 wherein said strands comprise bundled glass fibers having a linear density of about 33 to about 300 tex.

Claim 56. (New) The reinforcement of claim 47, wherein said mesh is no greater than about 0.020 inch in mesh thickness.

Claim 57. (New) The reinforcement of Claim 47, wherein said alkali-resistant material is selected from the group consisting of polyolefins and olefin copolymers.

Claim 58. (New) The reinforcement of Claim 47, wherein said respective coatings comprise one or more of polypropylene, polyethylene, copolymers of polybutylene and propylene, ethylene-propylene copolymers or other olefins, nylon, polyester, ethylene propylene rubber, thermoplastic polyolefin rubber, and ethylene-propylene diene monomer.

Claim 59. (New) A reinforcement for resisting flexure of a cementitious board having opposed faces, comprising:

an open mesh of high modulus of elasticity strands;

respective coatings on the strands, wherein the respective coatings comprise an alkali-resistant material adapting the open mesh for embedding in the cementitious board having a board thickness from about 1/4 inch to about 5/8 inch; and

the strands extending across one another to define a mesh thickness;

wherein the open mesh having the mesh thickness is adapted for two embedded layers in the cementitious board; and

wherein the open mesh having the mesh thickness is adapted for positioning each embedded layer about 1/32 inch to about 1/16 inch from a corresponding one of the opposed faces to avoid spalling, while each embedded layer is spaced from a neutral axis of flexure of the cementitious board to resist flexure of the cementitious board.

Claim 60. (New) The reinforcement of Claim 59, wherein the respective coatings are fused together where the strands cross one another to stabilize the strands in the mesh.

Claim 61. (New) The reinforcement of Claim 59, wherein the respective coatings comprise fused or sintered fibrous alkali-resistant material, and wherein the respective coatings are fused together where the strands cross one another to stabilize the strands in the mesh.

Claim 62. (New) The reinforcement of Claim 59, wherein the respective coatings comprise a fused or sintered core sliver of thermoplastic fibers commingled with the high modulus of elasticity strands, and a fused or sintered plurality of sheath thermoplastic fibers which cover the core sliver thermoplastic fibers and the high modulus of elasticity strands.

Claim 63. (New) The reinforcement of claim 62, wherein the core sliver of thermoplastic fibers comprises one or more of isotactic or syndiotactic polypropylene, ethylene-propylene

copolymers or other olefinic fibers, nylon, polyvinyl chloride, or polyester, and wherein the sheath thermoplastic fibers comprise one or more of polypropylene, polyethylene, copolymers of polybutylene and propylene, ethylene propylene rubber, thermoplastic polyolefin rubber, and ethylene-propylene diene monomer.

Claim 64. (New) The reinforcement of Claim 59, wherein the strands comprise bundled fibers with a Young's modulus of at least 1,000,000 psi.

Claim 65. (New) The reinforcement of Claim 59, wherein said alkali-resistant material is co-extruded with the strands.

Claim 66. (New) The reinforcement of claim 59 wherein said mesh has a strand count of about 2 to about 18 strands per inch in each direction.

Claim 67. (New) The reinforcement of claim 59 wherein said strands comprise bundled glass fibers having a linear density of about 33 to about 300 tex.

Claim 68. (New) The reinforcement of claim 59, wherein said mesh is no greater than about 0.020 inch in mesh thickness.

Claim 69. (New) The reinforcement of Claim 59, wherein said alkali-resistant material is selected from the group consisting of polyolefins and olefin copolymers.

Claim 70. (New) The reinforcement of Claim 59, wherein said respective coatings comprise one or more of polypropylene, polyethylene, copolymers of polybutylene and propylene, ethylene-propylene copolymers or other olefins, nylon, polyester, ethylene propylene rubber, thermoplastic polyolefin rubber, and ethylene-propylene diene monomer.